

Application/Control Number: 10/652,071

Page 2

Art Unit: 2800

CLMPTO

04/20/05

1. A film thickness measurement apparatus for measuring a thickness of a film formed on an object, comprising:
 - a first light source for emitting a polarized light to an object;
 - a light receiving part for receiving a reflected light of said polarized light from said object to acquire a polarization state of said reflected light;
 - an calculation part for obtaining a thickness of a film on said object on the basis of said polarization state;
 - a second light source for emitting an illumination light;
 - an optical system for guiding said illumination light to said object and guiding a reflected light of said illumination light from said object to a predetermined position;
 - a light shielding pattern disposed at a position almost optically conjugate to an aperture stop position on an optical path from said second light source to said object; and
 - an imaging part for acquiring an image of said light shielding pattern formed on said predetermined position,
wherein said calculation part obtains a tilt angle of said object on the basis of an output from said imaging part and obtains a thickness of said film from said polarization state, by using said tilt angle.

2. The film thickness measurement apparatus according to claim 1, further comprising:
 - a filter disposed at a position almost optically conjugate to a field stop position on an optical path from said second light source to said object,
wherein said filter cuts off a light of at least specific wavelength at a portion out

of a portion corresponding to a microscopic region on said object.

3. The film thickness measurement apparatus according to claim 1, wherein
said calculation part obtains said tilt angle on the basis of a vector between a
predetermined reference position and a barycentric position of an image of said light
shielding pattern in an image indicated by said output from said imaging part.

Cancelled claims 4-20